REMARKS

Claims 1-2 and 11-16 are pending. By this amendment, Applicants cancel Claim 15, amend Claims 1, 2, and 16, and add new Claims 17-21. There are now 12 claims pending – these are Claims 1, 2, 11-14, and 16-21. No new matter is introduced by the amendments. Reexamination and reconsideration of the application are requested in view of these amendments and the remarks.

Double Patenting Rejection

The Examiner rejects Claim 1 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claim 1 of U.S. Patent No. 6,326,357. The rejection is respectfully traversed. The Examiner states that "both claims are drawn to a composition comprising Mycobacterium phlei cell wall (MCC)". Applicants respectfully bring to the Examiner's attention that Claim 1 of the present application is drawn to a method of treating inflammation in an animal comprising administering to the animal an effective amount of a mycobacterial deoxyribonucleic acid preserved and complexed on a mycobacterial cell wall (BCC). Claim 1 of U.S. Patent No. 6,326,357 is drawn to a composition comprising *M. phlei* DNA (M-DNA) and deproteinized, delipidated *M. phlei* cell wall (MCC). In view of these remarks, Applicants respectfully assert that the claims are patentably distinct. Applicants request withdrawal of the rejection.

Claim Rejections – 35 U.S.C. § 112

The Examiner rejects Claim 16 as indefinite under 35 U.S.C. § 112, second paragraph. The Examiner states that "since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass". Applicants have amended Claim 16 to recite the steps involved in the method for treating inflammation in an animal with a composition comprising *Mycobacterium phlei*-DNA complexed on *Mycobacterium phlei* cell wall (MCC). Support for the amendments is found throughout the specification, particularly in

Examples 3-7. In view of the amendments, Applicants respectfully assert that the rejection has been overcome and request its withdrawal.

Claim Rejections – 35 U.S.C. § 101

The Examiner rejects Claim 16 under 35 U.S.C. § 101 "because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process". Applicants have amended Claim 16 to recite the steps involved in a method for treating inflammation in an animal with a composition comprising *Mycobacterium phlei*-DNA complexed on *Mycobacterium phlei* cell wall (MCC). Support for the amendment is found throughout the specification, particularly in Examples 3-7. In view of the amendments, Applicants respectfully assert that the rejection has been overcome and request its withdrawal.

Claim Rejections – 35 U.S.C. § 102

The Examiner rejects Claim 15 under 35 U.S.C. § 102(a) as being anticipated by *Filion et al.* (*J. Pharm. Pharmacol.*, 1998, v. 50 (Suppl.), p. 39). Applicants have cancelled Claim 15, thereby rendering the rejection moot.

The Examiner rejects Claim 15 under 35 U.S.C. § 102(b) as being anticipated by *Filion et al.* (*Blood*, 1997, v. 90, Suppl. 1, abstract 2959). Applicants have cancelled Claim 15, thereby rendering the rejection moot.

The Examiner rejects Claims 1, 2, and 11-14 under 35 U.S.C. § 102(b) as being anticipated by *Bermudez* and *Champsi* (*Infect. Immun.*, 1997, v. 61, pp. 3093-3097) (hereinafter *Bermudez*). The Examiner states:

> "Of particular interest, Bermudez & Champsi state, "[T]he antagonistic effect of IL-10 can play an important role in the kinetics of cytokine response following infection with M. avium" and "suppressive cytokines can be advantageous to the bacterium" (see p. 3096, left col.). Therefore, Bermudez & Champsi teach a method of administering to an

animal an effective amount of a composition comprising a mycobacterial DNA preserved and complexed on a mycobacterial cell wall and a liquid pharmaceutically acceptable carrier wherein the effective amount is effective to induce the synthesis of cytokine IL-10. This method would effectively treat or prevent inflammation in an animal because the mycobacterium administered is effective to induce the synthesis of anti-inflammatory cytokine IL-10."

The rejection is respectfully traversed. *Bermudez* does not teach a method of administering to an animal an effective amount of a composition comprising a mycobacterial DNA preserved and complexed on a mycobacterial cell wall. *Bermudez* teaches infection of mice with live *Mycobacterium avium* 101 (see page 3093, bottom of the second column), which was isolated from the blood of a patient with AIDS and cultured (see page 3093, second column, second paragraph). *Bermudez* states in the Abstract: "We document here that infection of C57BL/6 black mice with *M. avium* 101 triggered interleukin-10 (IL-10) production" (emphasis added). The present invention, in contrast, teaches a method of administering to an animal an effective amount of a composition comprising a mycobacterial DNA preserved and complexed on a mycobacterial cell wall (BCC). BCC is prepared by disrupting mycobacterial cells, collecting the solid components, and subjecting them to deproteinization and delipidation (see Examples 1 and 2, pages 7-8).

BCC does not contain live mycobacterial cells and does not cause a mycobacterial infection in the animals to which it is administered. The composition taught in *Bermudez* consists of whole, live *M. avis* cells and causes active infection. In view of these remarks, Applicants respectfully assert that *Bermudez* does not teach the claimed method of the present invention. Applicants request withdrawal of the rejection.

The Examiner rejects Claims 1, 2, and 11-14 under 35 U.S.C. § 102(b) as being anticipated by *Moura* and *Moriano* (*Immunology*, 1997, v. 92, pp. 429-436) (hereinafter *Moura*). The Examiner states:

> "Moura & Moriano teaches a method for treating or preventing inflammation in an animal having an inflammation, comprising administering to the animal having inflammation an effective amount of a composition comprising a mycobacterial DNA preserved and complexed on a mycobacterial cell wall..."

The rejection is respectfully traversed. Applicants respectfully submit that *Moura* does not teach a method of treating or preventing inflammation in an animal, comprising administering to the animal a composition comprising a mycobacterial DNA preserved and complexed on a mycobacterial cell wall. *Moura* teaches administering mycobacterial cell wall lipids to induce immune suppression in mice (see Summary, p. 429, also cited by the Examiner, and page 92, top of the first column). In *Moura*, neutral lipids are extracted from killed *Mycobacterium leprae* cells by petroleum ether extraction (see page 430, first column, *Material and Methods*). A liposome suspension (denoted LE) is prepared from these lipidic fractions and used in assays (see page 430, first column, *Material and Methods, Liposomes from* M. leprae *lipids*). It is this lipidic composition that exhibited immunosuppressive properties (see Summary, bottom, and Figures 5-7).

The Examiner states that "the M. leprea cell wall lipids would inherently comprise the M. leprea DNA, because there is no teaching that the DNA is removed or degraded from the cell wall prior to use". Applicants respectfully submit that the method of lipid extraction by petroleum ether employed in *Moura* "specifically extracts neutral lipids from the cell wall, keeping the integrity of the delipidated *M. leprae* (MLD) as analysed by optical microscopy", as stated in *Material and Methods* (M. Leprae *delipidation*). Bacterial DNA, a charged molecule, or bacterial cell wall, to which DNA is attached, are not soluble in petroleum ether. Therefore, the teaching of the lipid extraction method in *Moura* implies that cell wall-attached DNA remains in the MLD fraction.

Moura teaches a method for inducing immune suppression in mice by *M. leprae* lipids (lipids obtained from petroleum ether extraction of *M leprae*) and not by

administration of DNA. In contrast, the present invention claims a method of treating or preventing inflammation comprising administering delipidated mycobacterial DNA preserved and complexed on mycobacterial cell wall (BCC). In view of these remarks, Applicants respectfully assert that *Moura* does not teach the claimed method of the present invention. Applicants request withdrawal of the rejection.

The Examiner rejects Claim 15 under 35 U.S.C. § 102(e) as being anticipated by *Alkemade et al.* (U.S. Patent No. 5,759,554). Applicants have cancelled Claim 15, thereby rendering the rejection moot.

Applicants assert that the claims are now in condition for allowance and respectfully request that the application be passed to issuance. If the Examiner believes that any informalities remain in the case which may be corrected by Examiner's amendment, or that there are any other issues which can be resolved by a telephone interview, a telephone call to the undersigned attorney at (404) 745-2470 is respectfully solicited.

No additional fees are believed due, however, the Commissioner is hereby authorized to charge any deficiencies which may be required or credit any overpayment to Deposit Account Number 11-0855.

Sincerely yours,

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VERSION OF AMENDMENTS WITH MARKINGS SHOWING CHANGES

Added text is marked with underline. Deleted text is marked with [square brackets].

Please amend Claim 1 as follows:

1. (Amended Once) A method for treating [an] inflammation in an animal having [an] inflammation, comprising administering to the animal [having the inflammation] an effective amount of a composition comprising a mycobacterial deoxyribonucleic acid [B-DNA] preserved and complexed on a mycobacterial cell wall (BCC) and a pharmaceutically acceptable carrier, [thereby treating the inflammation in the animal having the inflammation] wherein the amount is effective to treat the inflammation.

Please amend Claim 2 as follows:

2. (Amended Once) A method for preventing [an] inflammation in an animal, comprising administering to the animal an effective amount of a composition comprising a mycobacterial deoxyribonucleic acid [B-DNA] preserved and complexed on a mycobacterial cell wall (BCC) and a pharmaceutically acceptable carrier, [thereby preventing the inflammation in the animal] wherein the amount is effective to prevent the inflammation.

Please amend Claim 16 as follows:

16. (Amended Once) A method for treating inflammation in an animal having inflammation, comprising administering to the animal an effective amount of a composition comprising *Mycobacterium phlei*-DNA preserved and complexed on a *Mycobacterium phlei* cell wall (MCC) and a pharmaceutically acceptable carrier, wherein the amount is effective to treat the inflammation. [Use of the composition of Claim 15 for treating or preventing inflammation in an animal.]